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EXAMINER

QUAN, ELIZABETH S

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,459

Applicant(s)

NOLFO ET AL

Examiner

Elizabeth Quan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 34-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-41 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-33, drawn to an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels, classified in class 422, subclass 131.
 - II. Claims 34-39, drawn to a tool for use in combination with an apparatus for performing parallel chemical reactions under pressure in first and second reaction vessels, classified in class 422, subclass 100.
 - III. Claims 40 and 41, drawn to an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels containing a liquid reaction mixture in combination with magnetic stirrer means, classified in class 422, subclass 99.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination (apparatus for performing parallel chemical reactions under pressure) does not recite the particulars of the subcombination (fluid distribution means). The subcombination has separate utility such as beverage or gas dispenser or ink jet printer.

3. Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination (apparatus for performing parallel chemical reactions under pressure) does not recite the particulars of the subcombination (magnetic stirrer means). The subcombination has separate utility such as mixing solids or liquids for uniform dispersion without chemical reactions, such as mixing heated batter or colored sand for a certain color or colored liquids for a certain color or mixing a chemical with water for dilution.

4. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as beverage or gas dispenser or ink jet printer. Invention III also has separate utility such as mixing solids or liquids for uniform dispersion without chemical reactions, such as mixing heated batter or colored sand for a certain color or colored liquids for a certain color or mixing a chemical with water for dilution. See MPEP § 806.05(d).

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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6. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, Group I is not required for Group III, and Group II is not required for Group III, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Deanna Baxam on 5/5/2003 a provisional election was made with traverse to prosecute the invention of I, claims 1-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-41 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

10. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

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12. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Regarding claims 1-3, 9, 11-16, 18-20, 26, 28, 29, 31-33, the word "means" is preceded by the word(s) "fluid supply" or "fluid manifold" or "first and second valve means" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

~~(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.~~

15. Claims 1, 4, 9, 11-14, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,126,904 to Zuellig et al.

Referring to claims 1, 4, 9, 11-14, 31, Zuellig et al. disclose an apparatus (10) for performing parallel chemical reactions under pressure in a plurality of reaction vessels (30) (see ABSTRACT; FIGS. 1-19). The apparatus (10) has a base with first and second rows of reaction vessel receiving recesses with at least one of the recess sets having more than one recess into which reaction vessels (30) are adapted to be received in the recesses (see FIGS. 2-4; COL. 8, lines 51-58; COL. 11, lines 37-52). The apparatus (10) also has

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a fluid supply (20) and a fluid manifold (110,130) with a first manifold portion/input manifold (130) and second manifold portion/distribution manifold (110) (see FIGS. 2 and 3; COL. 6, lines 34-48). A pipeline connects the fluid supply (20) and fluid manifold (110,130) to each other (see FIG. 3). The fluid manifold (110,130) has a first valve (134) and a second valve (134) independently operably connecting the fluid supply (20) to each of the reaction vessels (30) received in each of the first and second rows of reaction vessels (30), respectively (see FIGS. 1-7; COL. 4, lines 32-47). The fluid manifold (110,130) further comprises a first pressure relief valve (132) and second pressure relief valve (132) associated with the first row and second row of reaction vessels (30), respectively (see FIG. 3; COL. 8, lines 58-61; COL. 11, lines 57-67). The fluid manifold (110,130) also has means for separately sealing each of the reaction vessels (30) (see FIGS. 4-6, 7A, and 19; COL. 9, lines 22-34; COL. 10, lines 15-36; COL. 11, lines 22-52). The apparatus (10) has an explosion proof shield (100) interposed between the base and fluid manifold (110,130) and defining an interior space within which the reaction vessels (30) are situated (see FIG. 2; COL. 8, lines 25-37; COL. 11, lines 1-21). The apparatus (10) has means for connecting the fluid supply (20) and the interior space of the shield (100) (see FIG. 2; COL. 6, lines 34-64; COL. 8, lines 38-67).

16. Claims 1, 2, 4, 5, and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,792,431 to Moore et al.

Referring to claims 1, 2, and 31-33, Moore et al. disclose an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels (see ABSTRACT; FIGS. 1-7). The apparatus has a base with first, second, and third sets

of reaction vessel receiving recesses into which reaction vessels are adapted to be received in the recesses (see FIGS. 1-7; COL. 6, lines 35-47). Since the main embodiment of the apparatus deals with reaction vessels in a two-dimensional 3 x 3 array, at least one of the recess sets has more than one recess (see FIGS. 1-7; COL. 4, lines 32 and 33). The reaction vessels are constructed so that they can be plugged into the base at selected positions (see COL. 6, lines 36-38). The apparatus also has a fluid supply (48,54,60) and a fluid manifold (see FIG. 3; COL. 4, lines 45-47). According to Merriam-Webster Collegiate Dictionary, a manifold is defined as a pipe fitting with several lateral outlets for connecting one pipe with others. According to Merriam-Webster Collegiate Dictionary, a pipe fitting is defined as a piece (as a coupling or elbow) used to connect pipes or as accessory to a pipe. Another piece of pipe connects the fluid supply and fluid manifold to each other (see FIG. 3). The fluid manifold has a first valve (68), second valve (70), and third valve (72) independently operably connecting the fluid supply (48,54,60) to each of the reaction vessels received in each of the first, second, and third sets of reaction vessels, respectively (see FIGS. 1-7; COL. 4, lines 32-47).

Referring to claims 4, 5, and 31-33, according to Merriam-Webster Collegiate Dictionary, a row is defined as a number of objects arranged in a usually straight line or the line along which such objects are arranged. While another definition of row may be a continuous strip usually running horizontally or parallel to a base line or a horizontal arrangement of items, it is noted that "row" is a relative term depending on the frame of reference or the base line from which the observation of the line of objects is made. In

light of the definition provided by Merriam-Webster Collegiate Dictionary, the vessels received in the first and second sets of reaction vessel receiving recesses comprise of first (7,8,9) and second (4,5,6) rows of reaction vessels, respectively, and the vessels received in the third set of reaction vessel receiving recesses comprises a third row (1,2,3) of reaction vessels (see FIG. 3).

Therefore, Moore et al. includes all the limitations in claims 1, 2, 4, 5, and 31-33.

17. Claims 18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,888,830 to Mohan et al.

Referring to claims 18 and 22, disclose an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels (see ABSTRACT; FIG. 1). The apparatus has a base (40,90,91) with at least a first, second, third, and fourth rows of reaction vessel receiving recesses with at least one of the recess sets having more than one recess into which reaction vessels (12) are adapted to be received in the recesses (see FIGS. 1 and 27; COL. 10, lines 58-62; COL. 12, lines 53-67; COL. 13, lines 1-12).

The apparatus also has a fluid supply (24,26) and a fluid manifold (20,30) comprising a first manifold portion/input manifold (20) and a second manifold/distribution manifold (30) (see FIG. 1). Valve stems (55) are interposed between the manifolds (see FIG. 1; COL. 11, lines 21-67; COL. 12, lines 1-8). Means operably connect the fluid supply (24,26) and input manifold (20) such that fluid from the fluid supply (24,26) passes through the input manifold (20), valve stems (55), distribution manifold (30), and reaction vessels (12) (see FIG. 1). The distribution manifold (30) has first and second independent distribution channels (50) (see FIGS. 1 and 2).

Method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the method limitation “fluid from said supply means passes through said input manifold, said valve means, and said distribution manifold, to said reaction vessels” does not differentiate the claimed apparatus from the prior art apparatus since the prior art apparatus teaches all the structural limitations of the claims.

Therefore, Mohan et al. include all the limitations in claims 18 and 22.

18. Claims 1-6, 9, 14, 15, 18, 19, 22-26, 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,045,755 to Lebl et al.

Referring to claims 1-6, 9, 14, 15, 18, 19, 22-26, 31-33, Lebl et al. disclose an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels (see ABSTRACT; FIGS. 8A and 8B). The apparatus has a base (210) with at least the first, second, third, and fourth rows of reaction vessel receiving recesses (225) with at least one of the recess rows (225) having more than one recess into which reaction vessels (200) are adapted to be received in the recesses (225) (see FIGS. 8A and 8B; COL. 22, lines 27-34; COL. 23, lines 1-6). The apparatus also has a fluid supply (217) and a fluid manifold (225,212) comprising a first manifold portion/input manifold (212) and a second manifold portion/distribution manifold (212) (see FIGS. 8A and 8B). The second manifold/distribution manifold (212) has valve caps (227) for separately

sealing each of the reaction vessels (213) (see FIGS. 8A and 8B; COL. 22, lines 22-25).

The second/manifold portion (212) has at least a first and second independent distribution channels (see FIG. 8A).

According to Merriam-Webster Collegiate Dictionary, connect is defined as to become joined <the two rooms *connect* by a hallway> <ideas that *connect* easily to form a theory>; to join or fasten together usually by something intervening; or to place or establish in relationship. Therefore, the first row of reaction vessels and the first distribution channel as well as the second row of reaction vessels and the second distribution channel can be connected by something intervening between the two. They do not have to be continuous or connected by contact. The first row of reaction vessels is connected to the first distribution channel by the internal valve rods, and the second row of reaction vessels is connected to the second distribution channel by internal valve rods (see FIGS. 8A and 8B).

Valve rods (228) are interposed between the first manifold portion/input manifold (212) and the second manifold portion/distribution manifold (212) (see FIGS. 8A and 8B). Each valve rod (228) is operably connected to the reaction vessels (213) in each row such that the first and second valve rods are operably connected to the reaction vessels in the first and second rows of reaction vessels, respectively (see FIG. 8A). While the tip of the syringe (217) physically connects the fluid supply within the reservoir of the syringe with the second manifold portion/distribution manifold (211), which is connected to the first manifold portion/input manifold (212) by valve components such that the fluid supply is indirectly connected to the first manifold

portion/input manifold (212) by the valve components, the fluid from syringe (217) does not directly have access to the reaction vessels (213) (see FIGS. 8A and 8B; COL. 22, lines 55-65). The first manifold portion/input manifold (212) must be positioned laterally to open all the valves (see FIGS. 8A and 8B; COL. 22, lines 55-65). Upon opening all the valves contents of the syringe as well as air enter the second manifold portion/distribution manifold (211) to the reaction vessels (213) (see FIGS. 8A and 8B). It is unclear whether the contents of the syringe (217) enter the first manifold portion/input manifold (212) (see FIGS. 8A and 8B). The possibility exists (see FIGS. 8A and 8B). However, it is inherent to the process of opening the valves in dispensing that air entering the second manifold portion/distribution manifold (211) would also enter into the first manifold portion/input manifold (212) (see FIGS. 8A and 8B).

Additionally, method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the method limitation "fluid from said supply means passes through said input manifold, said valve means, and said distribution manifold, to said reaction vessels" does not differentiate the claimed apparatus from the prior art apparatus since the prior art apparatus teaches all the structural limitations of the claims.

Therefore, Lebl et al. include all the limitations in claim 1-6, 9, 14, 15, 18, 19, 22-26, 31-33.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

22. Claims 1-6 and 31-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,792,431 to Moore et al.

Referring to claims 1-3 and 31-33, Moore et al. disclose an apparatus for performing parallel chemical reactions under pressure in a plurality of reaction vessels

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(see ABSTRACT; FIGS. 1-7). Since the apparatus may deal with reaction vessels in a three-dimensional 5 x 5 x 5 array, the apparatus has a base with at least a first, second, third, fourth, and fifth sets of reaction vessel receiving recesses into which reaction vessels are adapted to be received, and at least one of the recess sets has more than one recess (see FIGS. 1-7; COL. 4, lines 15-20; COL. 6, lines 35-47). The reaction vessels are constructed so that they can be plugged into the base at selected positions (see COL. 6, lines 36-38). The apparatus also has a fluid supply (48,54,60) and a fluid manifold (see FIG. 3; COL. 4, lines 45-47). According to Merriam-Webster Collegiate Dictionary, a manifold is defined as a pipe fitting with several lateral outlets for connecting one pipe with others. According to Merriam-Webster Collegiate Dictionary, a pipe fitting is defined as a piece (as a coupling or elbow) used to connect pipes or as accessory to a pipe. Another piece of pipe connects the fluid supply and fluid manifold to each other (see FIG. 3). The fluid manifold has at least a first valve (68), second valve (70), third valve (72), fourth valve, and fifth valve independently operably connecting the fluid supply (48,54,60) to each of the reaction vessels received in each of the at least first, second, third, fourth, and fifth sets of reaction vessels, respectively (see FIGS. 1-7; COL. 4, lines 32-47). The embodiment of FIG. 2 regarding the three-dimensional 5 x 5 x 5 array of reaction vessels does not explicitly disclose the structure associated with the two-dimensional 3 x 3 array of FIG. 3. However, it is implied that the three-dimensional 5 x 5 x 5 array of reaction vessels would assume the structure and system of manifolds, pipes, pumps, and reservoirs of the two-dimensional 3 x 3 array of reaction vessels. Furthermore, Moore et al. disclose that as many as 1000 or more reaction vessels

arranged in different dimensions for combinatorial synthesis of as many complex, multi-component compounds as necessary or desired on a macroscopic scale (see COL. 2, lines 43-48; COL. 4, lines 15-33; COL. 5, lines 37-67; COL. 6, lines 1-34). In the event one would argue that the embodiment of FIG. 2 regarding the three-dimensional 5 x 5 x 5 array of reaction vessels does not assume the structure and system of the embodiment of FIG. 3, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the embodiment in FIG. 3 of Moore et al. to provide the three-dimensional 5 x 5 x 5 array of reaction vessels as in FIG. 2 or Moore et al. to synthesize as many compounds as necessary or desired on a macroscopic scale.

Referring to claims 4-6 and 31-33, according to Merriam-Webster Collegiate Dictionary, a row is defined as a number of objects arranged in a usually straight line or the line along which such objects are arranged. While another definition of row may be a continuous strip usually running horizontally or parallel to a base line or a horizontal arrangement of items, it is noted that "row" is a relative term depending on the frame of reference or the base line from which the observation of the line of objects is made. In light of the definition provided by Merriam-Webster Collegiate Dictionary, the vessels received in the first and second sets of reaction vessel receiving recesses comprise of first (7,8,9) and second (4,5,6) rows of reaction vessels, respectively, and the vessels received in the third set of reaction vessel receiving recesses comprises a third row (1,2,3) of reaction vessels (see FIG. 3). FIG. 2 of Moore et al. show 25 rows thereby affording a fourth row of reaction vessel or in claim terminology the vessels received in the fourth set of reaction vessel receiving recesses comprises a fourth row of reaction vessels.

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23. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,045,755 to Lebl et al. and alternatively in view of U.S. Patent No. 5,324,483 to Cody et al.

Referring to claims 28 and 29, Lebl et al. in the embodiment of FIG. 8A does not disclose an explosion proof shield interposed between the base and fluid manifold. However, it is very well known to interpose an explosion proof shield between the base and fluid manifold, defining an interior space within which the reaction vessels are situated, to protect the reaction vessels from the environment to maintain a certain pressure in the confined environment of the reaction vessels as necessary to perform an assay. Cody et al. disclose an explosion proof shield (20) made of transparent materials such glasses or plastics that would allow substantially high pressurization of the reaction vessels as required by common organic syntheses without hazards of explosions such as breakage of materials (see FIGS. 1-10; COL. 9, lines 16-61). Ports are located on the exterior surface of the shield (20) to allow fluid access into the interior space of the shield (20) (see FIGS. 1-10). It is noted that with the inclusion of the shield between the base and fluid manifold in the apparatus of Lebl et al. the valve bodies (216) connect the fluid supply means and the interior space of the shield (see FIG. 8A). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lebl et al. to provide the explosion proof shield as in Cody et al. to allow high pressurization of the reaction vessels as required by certain assays without hazards of explosions.

24. Claims 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,126,904 to Zuellig et al. or U.S. Patent No. 5,792,431 to Moore et al. or U.S. Patent

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No. 5,888,830 to Mohan et al. or U.S. Patent No. 6,045,755 to Lebl et al. in view of U.S. Patent No. 5,866,342 to Antonenko et al.

Referring to claims 17 and 30, none of the previously cited references disclose a temperature sensing means and wherein one of the reaction vessels received in one of the first and second sets of reaction vessel receiving recesses is adapted to receive the temperature sensing means. Antonenko et al. disclose a temperature sensing means disposed within a reaction vessel so the temperature within the reaction vessel may be monitored or monitor and control the actuation of the heating element (see COL. 2, lines 9-11; COL. 5, lines 60-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Zuellig et al. or Moore et al. or Mohan et al. or Lebl et al. to provide a temperature sensing means in a reaction vessel as in Antonenko et al. to monitor the temperature within the reaction vessel or monitor and control the actuation of the heating element.

25. Claims 7, 8, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,126,904 to Zuellig et al. or U.S. Patent No. 5,792,431 to Moore et al. or U.S. Patent No. 5,888,830 to Mohan et al. or U.S. Patent No. 6,045,755 to Lebl et al. in view of U.S. Patent No. 5,660,792 to Koike.

Referring to claims 7, 8, and 20, none of the previously cited references disclose the connecting means between the fluid supply and fluid manifold comprising a multiple-way fluid control valve or a five-way fluid control valve. However, it is very well known to use a multiple-way fluid control valve for supplying different multiple fluids to reaction vessels, particular a five-way fluid control valve for supplying five different

fluids to reaction vessels. Koike discloses a six-way fluid control valve selecting the desired fluid from among six different fluids with minimal contamination and minimal use of valves for a reliable and organized chemical system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Zuellig et al. or Moore et al. or Mohan et al. or Lebl et al. to provide multiple fluid sources and a multi-way fluid control valve or a five-way fluid control valve between the fluid supply and fluid manifold as in Koike for minimal contamination and minimal use of valves for a reliable and organized chemical system.

26. Claims 10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,126,904 to Zuellig et al. or U.S. Patent No. 5,792,431 to Moore et al. or U.S. Patent No. 5,888,830 to Mohan et al. or U.S. Patent No. 6,045,755 to Lebl et al. in view of U.S. Patent No. 5,866,342 to Antonenko et al.

Referring to claims 10 and 27, previously cited references disclose the use of a cap made of a variety of possible materials, including rubber. According to Merriam-Webster Collegiate Dictionary, an o-ring is defined as a ring (as of synthetic rubber) used as a gasket. It is unclear whether the caps in the previously cited references are in the shape of a ring. However, it is very well known to use an o-ring as a sealing mechanism. Antonenko et al. disclose an o-ring (58), which resembles the caps of the previously cited references, for sealing the reaction vessel (30) (see FIG. 4; COL. 5, lines 20-39). The configuration allows for the insertion of a filter (see FIG. 4; COL. 5, lines 20-39). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Zuellig et al. or Moore et al. or Mohan

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et al. or Lebl et al. to provide o-rings as the sealing means as in Antonenko et al. as it is very well known and allows for the placement of a filter within the reaction vessel.

27. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,888,830 to Mohan et al. or U.S. Patent No. 6,045,755 to Lebl et al. in view of U.S. Patent No. 6,190,619 to Kilcoin et al. or U.S. Patent No. 5,762,881 to Harness et al. or U.S. Patent No. 6,132,686 to Gallup et al.

Referring to claim 21, neither Mohan et al. nor Lebl et al. disclose a pressure relief valve connected to the input manifold. Lebl et al. hint at the importance of monitoring the pressure with a vacuum sensor to prevent pressure build-up. Gallup et al. and Harness et al. each include a pressure relief valve for venting their systems. Kilcoin et al. include a pressure relief valve for relieving back pressure. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Mohan et al. or Lebl et al. to provide a pressure relief valve as in Kilcoin et al. or Harness et al. or Gallup et al. to prevent pressure build-up.

28. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,126,904 to Zuellig et al. or U.S. Patent No. 5,792,431 to Moore et al. or U.S. Patent No. 6,045,755 to Lebl et al.

Referring to claim 16, none of the previously cited references disclose valve stems with different heights. However, it is very well known to use valve stem of different heights for different purposes in the system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use different stem heights for each of the valves for distinguishing the valve associated with

the first set of reaction vessels from the valve associated with the second set of reaction vessels.

Double Patenting

29. Applicant is advised that should claims 1-6 be found allowable, claims 31-33 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They include one or more limitations in the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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Elizabeth Quan
Examiner
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May 9, 2003


Jill Warden
Supervisory Patent Examiner
Technology Center 1700
